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September 15, 2004

John N. Wachtler
Minnesota Environmental Quality Board
658 Cedar Street
St. Paul, MN 55155

Re: Docket MEQB No. 03-73-TR-Xcel

Dear Mr. Wachtler:

Here are Xcel Energy's responses to EQB staff's information requests numbers six (6) and seven (7) regarding the Split Rock to Lakefield 345 kV & Chanarambie to Nobles County 115 kV transmission line project.

Request No. 6.

Please provide more detailed information regarding the potential for waterfowl, raptors, or other birds to be injured or killed by colliding with transmission lines. Please include information regarding what types of birds are most affected, what might be a safe distance between bird flyways and transmission lines, the relative effectiveness of measures that can be taken to reduce risks (such as adding diverters or modifying structure design) and any other aspect of the issue that you think is relevant. The EQB will, of course, independently assess the issue with the help of staff from the Department of Natural Resources. But since Xcel Energy has no doubt developed expertise in this area, we want to make sure we take advantage of your information, too. If the response is likely to be too voluminous, please call me to discuss what information you have that might be most up to date and useful in comparing the routes and mitigation options for this specific project.

Xcel Energy has actively been working on bird collision issues for several years. Each of Xcel Energy's operating companies has been working cooperatively with state and federal authorities to reduce migratory bird deaths from interactions with company facilities. The two major reasons this work has been done are to comply with state and federal laws that protect birds and to reduce the risk of outages on our system. This saves us money by reducing damage to our equipment, and supports Xcel Energy's efforts in being stewards of the environment.

On April 19, 2002, Xcel Energy signed a Memorandum of Understanding (MOU) with the United States Fish & Wildlife Service (USFWS or Service). The MOU outlines a cooperative, non-adversarial partnership between Xcel Energy and the USFWS to address avian issues related to the Company's facilities. This agreement is similar to one another Xcel Energy operating company, Public Service Company of Colorado (PSCO), had in place with the USFWS dating back to 1986. While the Company is party to the MOU, the Service will deem the Company to be sincere in its efforts to pro-actively protect migratory birds in

accordance with federal laws. The Service will exercise its discretionary authority not to submit for prosecution of the unlawful taking of migratory birds, which occur on Company property or facilities, unless the Company commits a material breach of the MOU. An example of a material breach would be where we refused to modify a structure where repeated electrocutions were occurring (which has been an issue with some power companies). This approach will allow Xcel Energy to pursue long-term plans (Avian Protection Plan (APP)) to improve facilities and reduce risk to birds, without fear of prosecution for bird deaths that may still occur.

Xcel Energy has completed the APP for Colorado and is beginning work for the APPs for its other three operating companies: Southwest Public Service, Northern States Power – Minnesota and Northern States Power – Wisconsin. The major focus of this work will be on distribution facilities, primarily distribution lines. However, the NSPM/NSPW APP will focus on the potential collision issues on transmission lines and osprey nesting issues.

In the Company's experience, situations where collisions have a higher potential to occur involve four primary factors: population, habitat, species, and forage. These four factors are taken into account when routing and siting transmission lines. We do not have a specific distance we consider "safe" when addressing these issues. Each case has to be assessed on an individual basis since populations, habitats, species, and forage areas vary from location to location. Commonly Xcel Energy works with the various resource agencies, such as the Minnesota Department of Resources (DNR), for guidance on where these areas may occur.

The common types of birds that are typically involved in collisions are the larger waterfowl, which include trumpeter swans, Canada geese, pelicans, cranes and mallards. In general, it is most effective to avoid placing lines near major flyway areas, especially those where birds roost and feed. Distances can vary and depend on terrain and the location of the flyway in relation to the transmission line route.

Xcel Energy has experienced specific instances of collisions with trumpeter swans and pelicans. The trumpeter swan locations include Hudson, Wisconsin Monticello, Minnesota. Additional information on these two projects can be provided to you upon request.

Xcel Energy has met and corresponded with the Environmental Assessment Ecologist, Shannon Fisher, Ph.D., who is the DNR representative in the area where the Project will occur, along with other local DNR wildlife management staff. This helped the Company identify Minnesota DNR areas of concern based on the proposed routes, and also identified areas for and types of mitigation appropriate for the project. In response to concerns about large waterfowl populations along this project, Xcel Energy attempted to site the lines with the following criteria in mind:

- Avoid placing lines directly adjacent to major flyway areas used for feeding and resting. Heron Lake is one of the major areas along the project routes. We moved the line several miles away from the Heron Lake area to keep the line away from the area where birds would fly in or out of the site.

- Attempt to locate lines away from managed wildlife habitats. Along several portions of the 115 kV line corridor there are numerous WMAs. To balance the attempt to avoid WMAs with other siting criteria, we did place some routes near WMAs. For example, Segment W5 on the Chanarambie to Nobles 115 kV line is adjacent to the Chandler WMA. However, there is also an existing 69 kV line there that can be double circuited with the new line. In addition, the DNR reviewed the route options and did not have major concerns. .

In addition to siting considerations, there are two primary methods that Xcel Energy can undertake to minimize collision risks:

1. Structure type: Studies have shown that transmission line designs that place the conductors on a parallel plane are effective in reducing collisions since it makes the wires more visible to birds. H-frame structures are commonly used in areas where this type of line design is warranted.
2. Marking lines: Xcel Energy has found that Swan Flight Diverters (SFD) are effective in marking the shield wires on the lines which can be especially difficult for birds to see during low light conditions. Xcel Energy placed SFDs at two sites Hudson Wisconsin in the early 1990s and near Monticello, Minnesota, and MN in 2004. Other measures considered by resource agencies include "flappers," which are small devices attached to the shield wires. Xcel Energy only uses those devices on distribution line facilities for two reasons: they are easier to install on distribution lines and the corona from higher voltage lines can break down the materials in these devices.

We have enclosed two documents for the EQB staff to use that Xcel Energy also uses for guidance, "*Mitigating Bird Collisions With Power Lines: The State Of The Art In 1994*" and "*Suggested Practices For Raptor Protection On Power Lines: The State Of The Art In 1996*". These documents were published through funding from the Edison Electric Institute (EEI) and the Avian Power Line Interaction Committee (APLIC). APLIC is a group consisting of several utility companies, EEI, and the U.S. Fish and Wildlife Service. The recommendations in these books are based on the science at the time of publication. Xcel Energy continues to follow the science on this issue and investigates new options as it deals with these issues. We have a group of employees, including myself, who work on this issue for the Company.

Request No. 7

Please provide additional details regarding the estimated costs of constructing Route 1 (Interstate Route) versus the Route 2 (Alliant Route). Table 3 on Page 17 of the Xcel Energy permit application indicates that the Interstate Route is approximately \$8.5 million less than the Alliant Route. Please provide further information and cost breakdowns regarding the two routes, including whether reduced maintenance and replacement costs for the existing older 161-kV structures over the next decade or so were factored into the cost analysis. If the potential for reduced future maintenance and replacement costs for the 161-kV line were not factored into Xcel Energy's analysis, please provide such an analysis or explain why you believe such an analysis is not possible.

Xcel Energy estimated the costs for the transmission line routes overall using a cost per mile estimate. A breakdown of each segment's cost estimate is available in the Application starting on page E.26. These route costs are also summarized in Table 3 on page 17. As would be expected, double circuit 345/161 kV structures will cost more per mile (\$650,000) than single circuit 345 kV structures (\$500,000). The overall costs of the project varies primarily on the length of the line and the number of miles of double circuiting.

For the Alliant Energy route, Xcel Energy would be double circuiting with about 67 miles of existing 161 kV line. For the I-90 route, Xcel Energy would be double circuiting with between 19 and 24 miles of 161 kV line (please see Table 4, page 32 of the Application). Therefore, if one assumes the difference in the two routes is about 47 miles of double circuiting and the cost difference is \$150,000 per mile for double circuiting versus single circuiting [pam, please confirm] the difference in overall cost attributable to double circuiting is \$7,050,000. The other key difference is in the length of the routes. Since the I-90 route is slightly longer, it costs slightly more (about 3 miles or \$1.5 million).

A description of the summary of the cost per mile for engineering and survey (E&S) costs, right-of-way costs, and line removal costs used for the project routes is attached as Attachment 1. E&S costs include the estimated costs for engineering, surveying, materials, labor and equipment to install the foundations, poles, conductors, etc. If MEQB staff wants additional information for the costs, Xcel Energy staff would be happy to meet and discuss this in more detail.

The double circuiting with existing 161 kV lines also has the potential to reduce the overall operation and maintenance costs since the existing 161 kV line would be maintained along with the 345 kV line as part of the \$1000 per mile cost. However, the potentially reduced operation and maintenance costs of the 161 kV lines were not factored into the overall costs of building the transmission lines. There are several reasons why we did not factor those costs into our analysis: (1) We do not, as a general practice, factor in the potential to reduce operating and maintenance costs of existing lines for any project route comparisons; (2) there is no available information as to what these savings would be for Xcel Energy or Alliant Energy; (3) the majority of reduced costs would be Alliant Energy's operating costs; and (4) generally the costs are not significant when compared to the overall capital costs to build the line and would not significantly impact our selection of the preferred route.

As noted in item number 2 in the previous paragraph, Xcel Energy does not have any plans at this time to replace its section of the Heron Lake to Split Rock 161 kV transmission line located on the western end of the route. Xcel Energy contacted Alliant Energy on their plans. Their planner Ken Leier responded that Alliant Energy does not have plans to rebuild either the Lakefield - Spencer 161 kV line or Heron Lake - Split Rock 161 kV lines. Alliant Energy does not have an annual estimated maintenance cost for these lines over the next decade.

In support of item number 4, we offer the following information. As stated on page 18 of Xcel Energy's Application, the yearly operation and maintenance costs for a 345 kV line are approximately \$1000/mile and for a 115 kV transmission line \$500/mile. These costs apply to Xcel Energy's system and we would expect Alliant Energy's 161 kV transmission lines to have a similar cost per mile.

For the Alliant Energy route, Xcel Energy would be double circuiting with about 67 miles of existing 161 kV line. For the I-90 route, Xcel Energy, would be double circuiting with between 19 and 24 miles of 161 kV line (please see Table 4, page 32 of the Application). Therefore if the Alliant Energy route were selected, about 43 to 48 miles of existing 116 kV transmission lines would be removed and the associated maintenance costs "avoided". Using the 115 kV estimates of \$500/ mile per year that would translate to approximately \$21,500 to \$24,000 of "reduced" yearly maintenance costs.

As noted in our Application, the Company does not believe the Alliant route is the most reasonable prudent alternative for the new line because of the potential financial and other impacts caused by the schedule for the Alliant route. If the Alliant route were chosen, then the project could see a delay in the in-service date by several months, if not years due to outage coordination requirements. A delay would not only cost increase the cost of the project for ratepayers, but could also adversely impact private wind developers who may have to delay their in-service dates.

Please feel free to contact me at 715-839-4661 to discuss these issues in more detail.

Sincerely,

Handwritten signature of Pamela Jo Rasmussen in cursive script.

Pamela Jo Rasmussen
Permitting Analyst

Attachments